

What is claimed is:

1. A radiation source module comprising a support member, a radiation source assembly connected to the support member and a seal disposed on a first surface of the module, the seal operable to provide a substantially fluid tight seal between the first surface and a second surface which is adjacent to the first surface.
2. The radiation source module defined in claim 1, wherein the support member is disposed in a frame.
3. The radiation source module defined in claim 2, wherein the frame comprises a second support member opposed to the first support member, the first support member and second support member supporting opposed ends of the radiation source assembly.
4. The radiation source module defined in claim 3, wherein the frame comprises a third support member interconnecting the first support member and the second support member.
5. The radiation source module defined in claim 4, wherein the seal is disposed on a surface of the third support member.
6. The radiation source module defined in claim 1, wherein a power supply is disposed in the frame.
7. The radiation source module defined in claim 1, further comprising an extraction system for moving the module between an in-use and in-service position with respect to a fluid treatment system.
8. The radiation source module defined in claim 1, wherein the seal comprises an expandable seal.
9. The radiation source module defined in claim 1, wherein the seal comprises a deformable seal.

10. A fluid treatment system comprising an open channel for receiving a flow of fluid, at least one radiation source module disposed in the channel, a surface of the at least one radiation source module confining fluid to be treated in a closed fluid treatment zone, the radiation source module comprising at least one radiation source assembly disposed in the fluid treatment zone.

11. The fluid treatment system defined in claim 10, wherein the radiation source assembly is attached to a first support member.

12. The fluid treatment system defined in claim 11, wherein the support member is disposed in a frame.

13. The fluid treatment system defined in claim 12, wherein the frame comprises a second support member opposed to the first support member, the first support member and second support member supporting opposed ends of the radiation source assembly.

14. The fluid treatment system defined in claim 13, wherein the frame comprises a third support member interconnecting the first support member and the second support member.

15. The fluid treatment system defined in claim 14, further comprising a seal disposed on a surface of at least one of the first support member, the second support and the third support member.

16. The fluid treatment system defined in claim 15, comprising a plurality of radiation source modules in side-by-side arrangement.

17. The fluid treatment system defined in claim 10, wherein a power supply is disposed on the frame.

18. The fluid treatment system defined in claim 10, further comprising an extraction system for allowing movement of the module between an in-use and in-service position with respect to a fluid treatment system.

19. The fluid treatment system defined in claim 10, wherein the radiation source module further comprises a blocking plate which obstructs the open channel when the radiation source module is in an extracted position.

20. The fluid treatment system defined in claim 10, wherein the seal comprises an expandable seal.

21. The fluid treatment system defined in claim 10, wherein the seal comprises a deformable seal.

22. A fluid treatment system comprising an open channel for receiving a flow of fluid, a confining element moveable between a first position to define a closed zone and a second position to define an open zone, and at least one radiation source module disposed in the channel and having at least one radiation source element, at least a portion of the radiation source element being disposed in the closed zone.

23. The fluid treatment system defined in claim 22, wherein the confining element is pivotally moveable between the first position and the second position.

24. The fluid treatment system defined in claim 22, wherein the confining element is slidably moveable between the first position and the second position.

25. The fluid treatment system defined in claim 22, wherein the confining element and the radiation source module are integral.

26. The fluid treatment system defined in claim 22, wherein the radiation source element comprises a longitudinal axis disposed substantially parallel to the direction of fluid in the open channel.

27. The fluid treatment system defined in claim 22, wherein the radiation source element comprises a longitudinal axis disposed transverse to the direction of fluid in the open channel.

28. The fluid treatment system defined in claim 25, comprising a plurality of radiation source modules disposed substantially adjacent to one another.

29. The fluid treatment system defined in claim 28, wherein at least one sealing element is disposed between adjacent pairs of the plurality of radiation source modules.

30. The fluid treatment system defined in claim 28, further comprising at least one spacer module disposed between adjacent pairs of the plurality of radiation source modules.

31. The fluid treatment system defined in claim 30, wherein the spacer module comprises a first seal disposed on the spacer module, the first seal arranged to provide a seal between the spacer module and a first adjacent radiation source module.

32. The fluid treatment system defined in claim 30, wherein the spacer module comprises a first seal and a second seal disposed on opposed sides of the spacer module, the first seal arranged to provide a seal between the spacer module and a first adjacent radiation source module, and the second seal capable arranged to provide a seal between the spacer module and a second adjacent radiation source module.

33. A radiation source module comprising a plurality of radiation sources, each radiation source: (i) having a concentric longitudinal axis in substantially parallel alignment with a concentric longitudinal axis of adjacent radiation sources, and (ii) being disposed at a predetermined distance from each adjacent radiation source to define a predetermined center-to-center distance between the concentric longitudinal axis of adjacent radiation sources, the radiation source module further comprising a confining element having a surface disposed at a distance from an adjacent radiation source which is equal to a predetermined fraction of the center-to-center distance.

34. The radiation source module defined in claim 33, further comprising a frame having a first support member which supports a first end region of the plurality of radiation sources.

35. The radiation source module defined in claim 34, wherein the frame comprises a second support member which supports at least a second end region of the plurality of radiation sources.

36. The radiation source module defined in claim 33, wherein the first support member comprises a first elongate member having a first longitudinal axis disposed substantially orthogonal to the concentric longitudinal axis.

37. The radiation source module defined in claim 35, wherein the second support member comprises a second elongate member having a second longitudinal axis disposed substantially orthogonal to the concentric longitudinal axis.

38. The radiation source module defined in claim 35, further comprising a third support member interconnecting the first support member and the second support member.

39. The radiation source module defined in claim 38, wherein the confining element is disposed in the third support member.

40. The radiation source module defined in claim 33, further comprising a seal disposed on a first surface of the module, the seal operable to provide a substantially fluid tight seal between the first surface and a second surface which is adjacent to the first surface.

41. The radiation source module defined in claim 40, wherein the seal is disposed on the confining element.

42. The radiation source module defined in claim 38, further comprising a seal disposed on a first surface of the module, the seal operable to provide a substantially fluid tight seal between the first surface and a second surface which is adjacent to the first surface.

43. The radiation source module defined in claim 40, wherein the seal is disposed on one or more of the first support element, the second support element, the third support element and the confining element.

44. The radiation source module defined in claim 34, wherein a power supply is disposed in the frame.

45. The radiation source module defined in claim 33, further comprising an extraction system for moving the module between an in-use and in-service position with respect to a fluid treatment system.

46. The radiation source module defined in claim 43, wherein the seal comprises an expandable seal.

47. The radiation source module defined in claim 43, wherein the seal comprises a deformable seal.